

CLAIMS

What is claimed is:

1. A method performed within a router for distributing routing information within the router, the method comprising:
 - 5 receiving a set of addresses from a client indicating route updates of interest to the client and a set of types of routing changes that are of interest;
 - maintaining one or more data structures including information corresponding to the set of addresses and the set of types of routing changes that are of interest;
 - receiving a particular route update; and
 - 10 notifying the client of the particular route update in response to identifying the particular route update corresponds to both at least one address in the set of addresses and at least one routing attribute in the set of types of routing changes that are of interest.
2. The method of claim 1, wherein said at least one routing attribute includes a change in an interface for reaching an address in the set of addresses.
- 15 3. The method of claim 2, wherein said notifying the client of the particular route update includes notifying the client of the address.
4. The method of claim 1, wherein said at least one routing attribute includes a change in a path from the router to an address in the set of addresses.
5. The method of claim 4, wherein the address is directly reachable from the
20 router.
6. The method of claim 1, wherein said at least one routing attribute includes a change in whether an address in the set of addresses is directly reachable or is not directly reachable.

7. The method of claim 1, wherein said at least one routing attribute includes a change in a distance to reach an address in the set of addresses.

8. The method of claim 1, wherein said at least one routing attribute includes a change in a cost metric to reach an address in the set of addresses.

5 9. A method performed within a device for distributing routing information within the device, the method comprising:

receiving a first set of addresses from a first client indicating route updates of interest to the first client and a first set of types of routing changes that are of interest to the first client;

10 receiving a second set of addresses from a second client indicating route updates of interest to the second client and a second set of types of routing changes that are of interest to the second client;

maintaining one or more data structures including information corresponding to the first and the second sets of addresses and the first and the second sets of types of routing changes that are of interest;

15 receiving a particular route update;

performing one or more lookup operations on said one or more data structures to identify a result corresponding to the particular route update, the result identifying the first client but not the second client, and the particular route update corresponding to a particular type of routing change identified in the first set of types of routing changes that are of interest; and

20 notifying the first client but not the second client of the particular route update in response to the result identifying the first client but not the second client and the particular route update corresponds to a particular type of routing change identified in the first set of types of routing changes that are of interest.

10. The method of claim 9, wherein said one or more data structures maintains a single set of types of routing changes that are of interest to the first and the second clients based on the first and the second sets of types of routing changes that are of interest.

5 11. The method of claim 9, wherein said information maintained by said one or more data structures identifies different states of interest by clients, wherein said different states of interest include: whether the first client, the second client, both the first and second clients, and neither the first or second client are interested in a particular type of routing change.

10 12. The method of claim 11, wherein a single indication of said different states of interest by clients is maintained for all of the addresses in the first and second sets of addresses.

13. The method of claim 11, wherein an indication of said different states of interest by clients is maintained for each address of said first and second sets of addresses.

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14. A method performed within a device for distributing routing information within the device, the method comprising:

maintaining a data structure of route dependencies including routes of interest to one or more clients;

5 receiving a routing update identifying a particular route;

identifying that no client of said one or more clients has subscribed to receive an update corresponding to the particular route;

identifying a second particular route dependent on the particular route;

10 identifying a particular client of said one or more clients has subscribed to receive an update corresponding to the second particular route; and

notifying the particular client of the update to the particular route in response to said identifying the particular client has subscribed to receive an update corresponding to the second particular route.

15 15. The method of claim 14, comprising identifying a change corresponding to the second particular route matches a types of routing changes that are of interest to the particular client; and wherein said notify the particular client is performed in response to said identifying the particular client has subscribed to receive an update corresponding to the second particular route and said identifying the change corresponding to the second
20 particular route matches a types of routing changes that are of interest to the particular client.

16. An apparatus for distributing routing information within a device, the apparatus comprising:

means for receiving a set of addresses from a client indicating route updates of interest to the client and a set of types of routing changes that are of interest;

5 means for maintaining one or more data structures including information corresponding to the set of addresses and the set of types of routing changes that are of interest;

means for receiving a particular route update; and

means for notifying the client of the particular route update in response to
10 identifying the particular route update corresponds to both at least one address in the set of addresses and at least one routing attribute in the set of types of routing changes that are of interest.

17. A computer-readable medium containing computer-executable instructions for performing steps for distributing routing information within a device, said steps
15 comprising:

receiving a set of addresses from a client indicating route updates of interest to the client and a set of types of routing changes that are of interest;

maintaining one or more data structures including information corresponding to the set of addresses and the set of types of routing changes that are of interest;

20 receiving a particular route update; and

notifying the client of the particular route update in response to identifying the particular route update corresponds to both at least one address in the set of addresses and at least one routing attribute in the set of types of routing changes that are of interest.

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18. A method performed within a router for distributing routing information within the router, the method comprising:

receiving a set of addresses from a client indicating route updates of interest to the client;

5 identifying at least one dependent route on which an address in the set of addresses is dependent;

maintaining one or more data structures including information corresponding to the set of addresses and said at least one dependent route;

10 receiving a particular route update corresponding to a particular route of said at least one dependent route; and

notifying the client of the particular route update in response to identifying the particular route update corresponds to the particular route of said at least one dependent route.

15 19. The method of claim 18, wherein said identifying the particular route update corresponds to the particular route of said at least one dependent route includes performing one or more lookup operations on said one or more data structures to identify one or more entries, wherein at least one of said one or more entries identifies that the client is interested in a change in said at least one dependent route.

20. A computer-readable medium containing computer-executable instructions for performing steps for distributing routing information within a device, said steps comprising:

- 5 receiving a set of addresses from a client indicating route updates of interest to the client;
- identifying at least one dependent route on which an address in the set of addresses is dependent;
- maintaining one or more data structures including information corresponding to the set of addresses and said at least one dependent route;
- 10 receiving a particular route update corresponding to a particular route of said at least one dependent route; and
- notifying the client of the particular route update in response to identifying the particular route update corresponds to the particular route of said at least one dependent route.

- 15 21. The computer-readable medium of claim 20, wherein said identifying the particular route update corresponds to the particular route of said at least one dependent route includes performing one or more lookup operations on said one or more data structures to identify one or more entries, wherein at least one of said one or more entries identifies that the client is interested in a change in said at least one dependent route.

22. An apparatus for distributing routing information within a device, the apparatus comprising:

means for receiving a set of addresses from a client indicating route updates of interest to the client;

5 means for identifying at least one dependent route on which an address in the set of addresses is dependent;

means for maintaining one or more data structures including information corresponding to the set of addresses and said at least one dependent route;

10 means for receiving a particular route update corresponding to a particular route of said at least one dependent route; and

means for notifying the client of the particular route update in response to identifying the particular route update corresponds to the particular route of said at least one dependent route.

23. The apparatus of claim 22, wherein said means for identifying the particular route update corresponds to the particular route of said at least one dependent route
15 includes means for performing one or more lookup operations on said one or more data structures to identify one or more entries, wherein at least one of said one or more entries identifies that the client is interested in a change in said at least one dependent route.

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